

REMARKS

Claims 1-7 and 9-23 are pending in this application, with claims 9-12 being withdrawn from consideration. By this Amendment, claim 1 is amended. No new matter is added.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution and amend claim 1 back to its original previously examined form; and (c) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

I. Request For Personal Interview

As discussed briefly during a May 12 telephonic interview with Examiner Kilkenny, Applicants desire a personal interview to discuss the merits of the Amendment. It is believed that such an interview will advance prosecution.

II. Pending Claims 1-7 and 13-23 Define Patentable Subject Matter

In the Office Action, claims 16-18 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,458,711 to Yang in view of U.S. Patent No. 4,483,438 to Kobiella and U.S. Patent No. 4,265,954 to Romanek. Additionally, claims 1-5, 7 and 13-19 are rejected under 35 U.S.C. §103(a) over Canadian Patent Publication No. CA 2,162,686 to Van Vliet in view of U.S. Patent No. 4,483,438 to Kobiella, U.S. Patent No. 4,265,954 to Romanek, and Canadian Patent Publication No. CA 1,026,522 to Saito. Finally, claims 6 and 19-23 are rejected under 35 U.S.C. §103(a) over Canadian Patent Publication No. CA 2,162,686 to Van Vliet in view of U.S. Patent No. 4,483,438 to Kobiella, U.S. Patent No. 4,265,954 to

Romanek, and Canadian Patent Publication No. CA 1,026,522 to Saito, further in view of French Patent Publication No. FR 1,506,163 to Hoechst and U.S. Patent No. 3,560,291 to Foglia. These rejections are respectfully traversed.

The present invention is concerned with solving a problem of early rupture of geogrids subjected to heavy loads. It has been found by Applicants that the source of such failures is at the bonding site. See Applicants' page 1, lines 18-23 and page 2, line 7 - page 3, line 2. Applicants have discovered the source of the problem being at the point where an elongated strip under tensile force is welded to a transverse strip. Such loading causes the transverse strip to split because it has a lower strain to failure in this direction. This split, because of its attachment to the loaded strip, causes a crack in the loaded strip, which leads to early rupture. However, Applicants have solved this problem by providing spatially separated bonding points in the overlap zone. Applicants have found that because of this spatial separation, the split in the transverse strip is incapable of exerting force to the loaded strip, preventing the problem of early rupture of the loaded strip.

As admitted, both Yang and Van Vliet fail to teach or suggest a grid comprising polymeric strips in at least two direction in which bonded zones of overlap comprise at least two spatially separated bonding points or bonding lines. Instead, such references teach entire bonding. For this lacking feature, the Office Action relies on Kobiella and Romanek. However, as discussed below in detail, these secondary references are not combinable with Yang or Van Vliet and, even if combined, would teach away from the invention.

Kobiella's technical field is that of a joint for securing together overlapping portions of a (singular) thermoplastic strap (see Kobiella, col. 1, lines 14-16). In accordance with this teaching, the overlap of the strap is with itself (see Kobiella, Fig. 1: Strap S overlaps in portion J with itself). The overlap serves in binding a stack of newspapers or magazines (see Kobiella, col. 1, lines 64-67).

In contrast to Kobiella, the present invention pertains to a grid comprising drawn polymeric strips in at least two different directions, with the strips being bonded together in the zone or zones of overlap (see present invention, description page 1, lines 8-11). So, Kobiella's technical field is prima facie different from that of the present invention. Consequently, one skilled in the art of grids would not have looked to Kobiella, since it applies to a strap and is not concerned with problems encountered by a grid (i.e., forces acting in multiple transverse directions because of the intersecting strips).

Nevertheless, even if one skilled in the art of grids would have read Kobiella, he would find in col. 6, lines 8-11 that Kobiella's spaced joint J having spaced fused regions exhibits a strength of at least 75% of the strap strength, i.e., a loss in strength retention of up to 25%. However, the closest prior art of the present invention given by longitudinal and transversal straps bound together over their entire zone of overlap exhibits only a 15% loss in strength retention (see present invention, description page 6, lines 22-27). Thus, one of ordinary skill would have been taught by Kobiella that fusing the zone of overlap of longitudinal and transversal straps with separated lines will result in a loss of strength retention which is up to $(25/15) \cdot 100 = 67\%$ worse than that of longitudinal and transversal straps fused on their entire zone of overlap.

Consequently, one of ordinary skill in the art would not in any way have been motivated to solve the present invention's problem of early rupture (see present invention, description page 1, lines 25-26) by spaced welding lines or by in what ever manner of spaced fused regions in the zone of overlap of longitudinal and transversal straps of the grid. Quite to the contrary, if anything, he would even be warned not to try to practice Kobiella's teaching with grids. As such, if anything, Kobiella teaches away from the invention.

Moreover, the alleged motivation mentioned by the Examiner is reduced flexibility. However, flexibility is neither a problem of Kobiella nor a problem of the present invention.

As such, it is not believed to be a relevant "motivation" for the alleged combination, particularly in light of the above.

Romanek's technical field is that of non-woven sheets or webs of fibers which sheets or webs are fused in preselected areas (see Romanek, col. 1, lines 5-8). The Examiner correctly mentions that the sheet or webs bound over their entire surface become too stiff for many applications. However, too high stiffness, i.e., too low flexibility, is neither a problem of grids nor the problem of early rupture underlying the present invention. Therefore, one of ordinary skill in the art, who is faced with the problem of early rupture, would not have looked to Romanek.

Nevertheless, even if one skilled in the art of grids would have read Romanek, he would find preselected points or areas which are preselected from the total area of the non-woven sheet or web (see Romanek, col. 2, lines 29-36 and Fig. 5-8) and therefore, do not mean preselected points or areas within the zone of overlap of the fibers which constitute Romanek's non-woven sheets or mats. One skilled in the art of grids would not have found any indication in Romanek that at least one zone of overlap of the fibers comprises at least two spatially separated bonding points or lines and straps in two different directions.

Quite to the contrary, to fuse at least some of the thermoplastic fibers in the preselected areas (see Romanek, col. 2, lines 50-52) clearly discloses that in the preselected areas fibers are fused over their entire zone of overlap. So, Romanek discloses a kind of bonding between the fibers from which the present invention starts. This kind of bonding gives rise to the problem of early rupture (see present invention, description page 2, lines 6-30). Romanek's non-woven sheet or web exhibiting the preselected areas described above is fused to a sheet or web of another material, the sheet or web is perforated in preselected areas and tufting fibers are rigidly bound in a substrate of such a sheet or web, thus firmly binding

tufting materials therein and having an improved density of tufting (see Romanek, col. 2, lines 56-61).

As such, neither Kobiella nor Romanek provide motivation for the combination. The only source of motivation is Applicants' specification, the use of which requires impermissible hindsight consideration.

Saito also fails to overcome the deficiencies of the above references with respect to independent claim 1. Saito discloses on page 3, lines 10-27 tapes consisting of a laminated plastic film of at least two layers of different polymers, wherein the first layer is a crystalline layer and the second layer is a polymer of a lower melting or softening point than the first layer. The tapes are woven in a manner that the lower melting point layers of the longitudinal tapes are facing the lower melting point layer of the transverse tapes. Then, the tapes so woven are heated under pressure so that the lower melting point layers bond together at their points of contact, which clearly means that longitudinal and transversal tapes are bound over their entire zone of overlap. The same holds for the other embodiments of Saito's teaching which he discloses on page 3, line 28 - page 4a, line 16. Therefore, Saito also discloses a kind of bonding between the tapes from which the present invention starts, giving rise to the problem of early rupture as mentioned above.

Thus, one skilled in the art of grids and faced with the problem of early rupture:

- would read Van Vliet and could not find any solution for the problem,
- would not read Kobiella because it is in a different technical field (or if he would read Kobiella he would be taught away from the invention),
- would not read Romanek because it is in a different technical field (or if he would read Romanek he would recognize that Romanek discloses a kind of bonding between the fibers from which the present invention starts, i.e., entire bonding at overlap), and

would read Saito and recognize that Saito too discloses a kind of bonding between the tapes from which the present invention starts, giving rise to the problem of early rupture as mentioned above because of entire bonding.

Consequently, in what ever way one skilled in the art would have looked to or combined the cited documents, he would not have any chance to arrive at a grid comprising drawn polymeric strips in at least two different directions, with the strips being bonded together in at least one zone of overlap, wherein said at least one zone of overlap comprises at least two spatially separated bonding points or lines as claimed. Accordingly, independent claims 1 and 16 define over the art of record. Claims 2-7, 13-15, 17-18 and 19-23 dependent therefrom are also allowable. Withdrawal of the rejections is respectfully requested.

III. Rejoinder of Withdrawn Claims 9-12

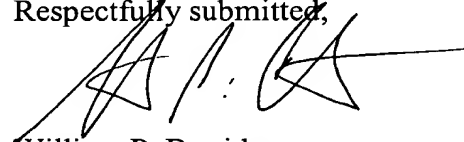
Claims 9-12 are withdrawn from consideration as being directed to a non-elected invention. However, claims 9-12 are directed to a process of making the grid of claim 1. Accordingly, Applicants submit that claims 9-12 should be rejoined with claims 1-7 and 13-23 at least because claim 1 is allowable for the reasons discussed below.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-7 and 9-23 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



William P. Berridge
Registration No. 30,024

Stephen P. Catlin
Registration No. 36,101

WPB:SPC/can

Date: May 13, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
--